NASA Facts

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Space Administration

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EARTH SCIENCE APPLICATIONS

NASA Stennis Space Center (SSC) plays a key role in NASA's Earth Science Applications Program within the Earth Science Enterprise. This division of NASA is dedicated to understanding the total Earth system and the effects of natural and human-induced changes on the global environment. Earth science applications uses NASA's unique Earth science research results, data, remote sensing and other technical capabilities to help solve practical problems and to provide information for better decision-making.

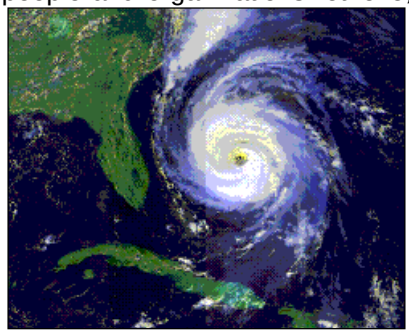
Remote sensing combines the use of satellites, sensors, communication networks, computing capabilities and geographic information systems to collect information about the Earth. The images and data are then processed by technologists and analyzed by scientists to help in understanding and protecting our home planet.

The NASA Earth Science Applications Program bridges the gap between Earth science research results and the adoption of data and prediction capabilities for reliable and sustained use in decision-support systems managed by partner federal agencies.

The program contributes to expanding and accelerating the use of knowledge, science and technologies resulting from the Enterprise's missions to improve predictions in weather, climate and responses to natural hazards.

Enhancing decision-support systems

Through partnerships with other federal agencies, the Earth Science Applications Directorate at SSC is supporting the identification of decision-support systems that could benefit from NASA's Earth science capabilities. A decision-support system is an interactive, often computer-based system designed to help people and organizations retrieve, summarize and analyze information and conduct predictive analyses on scenarios that enhance the capacity to make better decisions. SSC, in working with these partners, will provide benchmarking, evaluation, verification and validation of these enhancements to the decision-support systems in twelve National Application areas. SSC is also identifying and supporting crosscutting solutions that provide enhancements in multiple application areas.



Earth Science Applications help turn remote sensing data into practical systems that help save lives and property.

Meeting priority national needs and opportunities

Successful Earth science applications can save lives and money, and enhance the quality of life while identifying, conserving and protecting natural resources.

NASA's Earth Science Enterprise has established the following Applications of National Priority:

- Agricultural Efficiency
- Air Quality
- Aviation
- Carbon Management
- Coastal Management
- Ecological Forecasting
- Disaster Management
- Energy Management
- Homeland Security
- Invasive Species
- Public Health
- Water Management

The Earth Science Applications Directorate at Stennis leads in four areas of these Applications of National Priority:

Agricultural Efficiency — NASA's Earth science capabilities help agricultural producers better understand the forces that drive global climate and weather. Increased understanding of these forces provides more accurate and timely information, can mitigate the effects of extreme weather events on the agricultural economy and provide necessary data for production and marketing decisions.

Coastal Management — Coastal communities can better plan for and mitigate the effects of sea-level change and other coastal hazards by examining the effects of natural and man-made changes on coastal ecosystems. Remote sensing data can also help provide advanced warnings of hypoxia and harmful algal blooms.

Satellite images such as this one showing the Mississippi River sediment plume in the Gulf of Mexico can support efforts to conserve fragile coastal ecosystems.

Homeland Security — NASA provides measurement, observations and modeling systems to support risk, vulnerability and mitigation assessments. These data can support decision-making to ensure the adequacy of preparing for, preventing, responding to and recovering from attacks on our nation's infrastructure.

Disaster Management — Earth science data help decision makers to better respond to natural disasters, including hurricanes, wildfires, earthquakes, volcanic eruptions and landslides. More accurate forecasts and predictions are vital to proper evacuation and damage control strategies.

The Earth Science Applications Directorate's function in the Applications of National Priority is critical. The directorate supports identification of the decision-support systems that would benefit from NASA's Earth science missions and models. This critical role calls upon SSC's unique technical expertise and on-site capabilities.

For more information on remote sensing applications research and development, contact the Stennis Space Center Earth Science Applications Directorate at (228) 688-2042, or access the ESA Home Page at http://www.esad.ssc.nasa.gov.

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